1. The isomerization of cyclopropane to form propene   
  
mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/image_13-25.gifmhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/arrow_rt.gifCH3 — CH mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/2line-h.gifCH2CH2   
  
is a first-order reaction. At 760 K, 15 percent of a sample of cyclopropane changes to propene in 6.8 minutes. What is the half-life of cyclopropane at 760 K?

2. Consider the two gaseous equilibria (*K*1 and *K*2):  
  
SO2(*g*) + ½O2(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gifSO3(*g*)       *K*1  
  
2SO3(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2SO2(*g*) + O2(*g*)       *K*2  
  
The values of the equilibrium constants *K*1 and *K*2 are related by \_\_\_\_\_\_\_\_.

3. The following reactions occur at 500 K. Arrange them in order of increasing tendency to proceed to completion (i.e., least completion mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/arrow_rt.gifgreatest completion).

1. 2NOCl mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2NO + Cl2        *KP* = 1.7 x 10–2
2. N2O4 mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2NO2                 *KP* = 1.5 x 103
3. 2SO3 mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2SO2 + O2         *KP* = 1.3 x 10–5
4. 2NO2 mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2NO + O2          *KP* = 5.9 x 10–5

4. On analysis, an equilibrium mixture for the reaction  
  
2H2S(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2H2(*g*) + S2(*g*)  
  
was found to contain 1.0 mol H2S, 4.0 mol H2, and 0.80 mol S2 in a 4.0 L vessel. Calculate the equilibrium constant for this reaction.

5. At 35oC, the equilibrium constant for the following reaction is *K*c = 1.6 x 10–5.  
  
2NOCl(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2NO(*g*) + Cl2(*g*)  
  
An equilibrium mixture was found to have the following concentrations of Cl2 and NOCl:  
  
[Cl2] = 1.2 x 10–2 *M*; [NOCl] = 2.8 x 10–1 *M*. Calculate the concentration of NO(*g*) at equilibrium.

6. For the following reactions the equilibrium constants are defined.  
  
A + 2B mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gifC       *K*1  
C mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gifD + E         *K*2  
  
Then for the reaction  
  
A + 2B mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gifD + E       *K*c  
  
the equilibrium constant must be equal to \_\_\_\_\_\_\_\_.

7. At 700 K, the reaction  
  
2SO2(*g*) + O2(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2SO3(*g*)  
  
has an equilibrium constant *K*c = 4.3 x 106, and the following concentrations are present:  
  
[SO2] = 0.10 *M*  
[SO3] = 10 *M*  
[O2] = 0.10 *M*  
  
Is the mixture at equilibrium? If not at equilibrium, in which direction—**left to right** or **right to left**— will the reaction occur to reach equilibrium?

8. For the following reaction at equilibrium, which choice gives a change that will shift the position of equilibrium to favor formation of more products?  
  
2NOBr(*g*) mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/eqarrows.gif2NO(*g*) + Br2(*g*)       mhtml:file://C:\Documents%20and%20Settings\tamatha.perkins\Desktop\Chemistry\Quiz%202%20Preview.mht!http://myedison.tesc.edu/tescdocs/Web_Courses/CHE-112-OL/Rewrite_0203/images/delta.gif*H*orxn = 30 kJ